BSC 307 Science Literacy Lesson Plan Form

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| Title:  Climate around the world | Grade Level:  9 |
| Objectives: TSWBAT:  1. Graph data of average temperatures and precipitation amounts from data sets. | |
| Illinois State Learning Standards:  ISLS 11 3-B: Collect and record data accurately, using consistent metric measuring and recording techniques with necessary precision, recording data accurately in appropriate format, or graphing data appropriately according to the tested variables. | |
| Science Literacy Skills:  Data collection/recording  Graphical Analysis | |
| Activity Description:  Students will be given a worksheet that displays a climate graph. Students will answer questions about the climate of the given area based on their interpretations of the graph. Questions will be arranged in a way to help with students in interpreting how to correctly read a climate diagram. Students will then choose two cities or areas within the same biome and look up their average temperature and precipitation rates per month. The students will then record their data in data tables and construct their own climate diagrams. | |
| Assessment Strategies:  Students will be assessed on their ability to create a graph when given a data set. | |
| Rationale:  Since different biomes around the world have varying climates, it is important that students understand the common characteristics of cities located in similar biomes around the world such as temperature and precipitation amounts. By having students choose a | |
| Resources:  Illinois State Board of Education. (1997). Illinois State Learning Standards. [On-  line]. Retrieved on March 23, 2011. Available:  <http://www.isbe.net/ils/Default.htm>.  Nightlab.ch, Initials. (2009). *Climate diagrams*. [On-line] Retrieved on March 23, 2011.  Available: http://www.Climatediagrams.com | |

\* Please attach any and all handouts/worksheets to this lesson plan

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| Title:  Green Thumbs | Grade Level:  9 |
| Objectives: TSWBAT:  1. Predict the effects of changing abiotic factors on plant growth | |
| Illinois State Learning Standards:  ISLS 12 B 1. Apply scientific inquiries or technological design to explore the implications of change and stability in ecosystems, identifying evolutionary adaptations brought on by environmental changes, analyzing factors that influence the size and stability of populations (e.g., temperature, climate, soil conditions, predation, habitat), or contrasting energy use by organisms. | |
| Science Literacy Skills:  Designing a laboratory experiment | |
| Activity Description:  Students will hypothesize the effects of changing an abiotic factor and the effects it will have on a biotic factor within an ecosystem. For this activity, students will work with plants and set up an experiment to see how their change affects the plant’s growth. | |
| Assessment Strategies:  Students will be assessed on their ability to explain their results from the experiment and understanding of what caused them. Students will also be evaluated on their data recording. | |
| Rationale:  Many experiments students do in high school science classes tend to be more activity based than actual experiments. With this activity, students have to predict how changing an abiotic variable will affect a biotic one. The student is then given the chance to create their own experimental set-up to test their selected variable. This allows the student to actually go through an experiment that they designed and gives more personal meaning for the lab to the student. Since this activity requires observations over several days to gather sufficient data, it also emphasizes the importance of data gathering and recording to help students defend their hypothesis and or results. | |
| Resources:  Illinois State Board of Education. (1997). Illinois State Learning Standards. [On-  line]. Retrieved on March 23, 2011. Available:  <http://www.isbe.net/ils/Default.htm>.  Miller, K.R., & Levine, J.S. (2003). *Biology*. New Jersey: Pearson Prentice Hall. | |

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| Title:  Greenhouse effects? Pshhhhh! | Grade Level:  9 |
| Objectives: TSWBAT:  1. Identify valid sources for scientific data | |
| Illinois State Learning Standards:  ISLS 13 A 2.Apply scientific habits of mind to curricular investigations in life, environmental, physical, earth, and space sciences, evaluating evidence, inferring statements based on data, questioning sources of information, explaining necessity of manipulating only one variable at a time, or retrieving mathematical data accurately for scientific analysis. | |
| Science Literacy Skills:  Assessing validity of information | |
| Activity Description:  Students will be given several articles containing information related to the greenhouse effect. It will be the student’s job to assess the validity of the source based on the information presented within the article as well as who published it and when it was created. The goal of this activity is to get students to understand the importance of evaluating sources of information when conducting research. After students have read the articles, they will discuss in groups as to whether or not their article is a reliable source of information and could be used in a research project. | |
| Assessment Strategies:  Students will be assessed on their participation in group discussions. | |
| Rationale:  With the power of the internet, it is easy for individuals to create and upload a paper or book that claims to be the truth. However, the information they present can be outdated and incredibly inaccurate. This creates an issue because individuals will read something online and often take it as it is. Students need to learn how to evaluate if a source is valid or not. By having students read actual scientific articles as well as invalid sources, they will be able to create their own evaluation system which will assist them throughout their academic career and carry over into other academic disciplines. | |
| Resources:  greenhouse effect. (2011). In Encyclopedia Britannica. Retrieved from  <http://www.britannica.com/EBchecked/topic/245233/greenhouse-effect>  Illinois State Board of Education. (1997). Illinois State Learning Standards. [On-  line]. Retrieved on March 23, 2011. Available:  <http://www.isbe.net/ils/Default.htm>.  KutWrite, . (unknown). Global warming is fake- how you can tell [Web log message].  Retrieved from <http://hubpages.com/hub/Global-Warming-Fake-01>  Weatherstreet.com, . (2010, November 26). *What is the greenhouse effect?*. Retrieved  from http://www.weatherquestions.com/What\_is\_the\_greenhouse\_effect.htm | |

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